

USER PARTICIPATION, BEHAVIOUR METRICS AND TOOL PERFORMANCE OF ONTOLOGY: A SURVEY BASED ON PRESENT DATASETS

Priyanka¹, Yogesh Kumar² & Dheeraj kumar Sahni³

Abstract-Suitable and valid behavior metrics are important mean to transform operation strategy into action. However, developing behavioral metrics is hard to achieve. User participation is an important factor of feed back without this any measurement can't be completed. This paper presents a detailed survey on behavior matrices of ontology with a special attention accorded to the affinity between them. During last five decade ontology are famous for related data collection. It is somehow different from the data base management system. In modern life everyone wants to make his own unique database to connect with other. There are various ontology tools available to use for the said purpose like Protégé etc. The primary goal of this survey is to understand the behavior matrices of the ontology user.

Keyword: Ontology, Behavior metrics, Ontology, Performance, User participation

1. INTRODUCTION

The term ontology has been adopted from two Greek words: on which means “being,” and logia, where it is defined as the “theory of existence”. Ontology is a backbone technology for semantic web [1].

There are various type of user available in the world some of them are educated and some are not. All are different in behavior about a particular thing in different environment. Our main focus is on the user acceptance, behavior metrics and tool performance of ontology. We had conducted a survey of 100 people on some open source ontology tools and developed ontology which is available freely to use. We analyze the following factors.

1.1 Interface of Tool

The tool available should be simple in interaction with the user. Some tools which provide good functionality to construct ontology but having poor interface has been dislike by the user who are the first time user of ontology. Those people who are aware to the term ontology and having little bit knowledge about the tools will accept for ontology construction.

1.2 Language Acceptance

Language accepted by the tool is big factor of user acceptance. The tool should accept multi languages like English, French, Hindi etc some tools which accept only few languages are dislike by the user because everyone feels comfortable in his mother tongue or the language he is familiar with that.

1.3 Cost

Cost is a comparative factor for ontology user. Everyone wants more at less cost. Users compare the cost of present tools and their functionality of tools available. If a tool is available at less cost then it will be used by the more number of people.

1.4 Technology used

Technology is the backbone of research. It is the main pillar of implementing the creative ideas. This factor affects that user who is the developer. Organization checks the technology used of the tools in which it is developed. The general people does not check what technology is to be used

1.5 Nature of Ontology

People are interested to know the nature of ontology. As young generation shows interest in the present database like social media, creative ideas, games etc.

¹ Computer Science & Engineering, UIET, MDU, Rohtak, India

² Computer Science & Engineering, UIET, MDU, Rohtak, India

³ Computer Science & Engineering, UIET, MDU, Rohtak, India

1.6 Domain & Scope

Domain and scope is the important behavior metrics of ontology. It measures the future cost of ontology with respect to the present cost of ontology.

1.7 Tools Available

There are various software tools available to develop ontology. Many ontology tool could be found on internet like protégé, top braid composer (all three editions available for trail), SWOOP, Neon toolkit etc. are used by many people to develop ontology.

1.8 Reliability

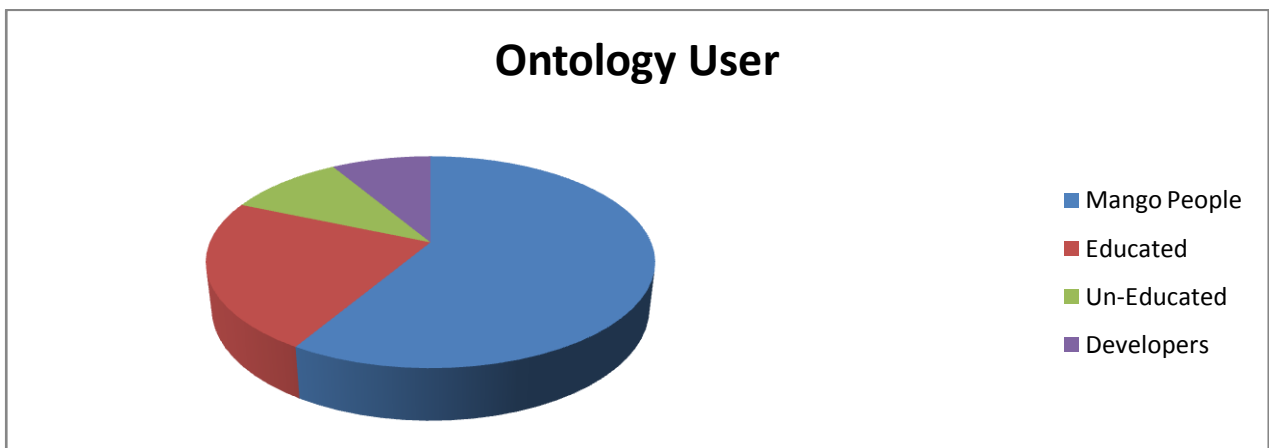
The first question arises when we discuss about the ontology is that How much a tool is reliable for the user? It measures the present value of the ontology with the other available ontology. It highly depends on the performance of ontology like query answering, data storing method, output format, response, Security level etc.

1.9 Functionality of tools

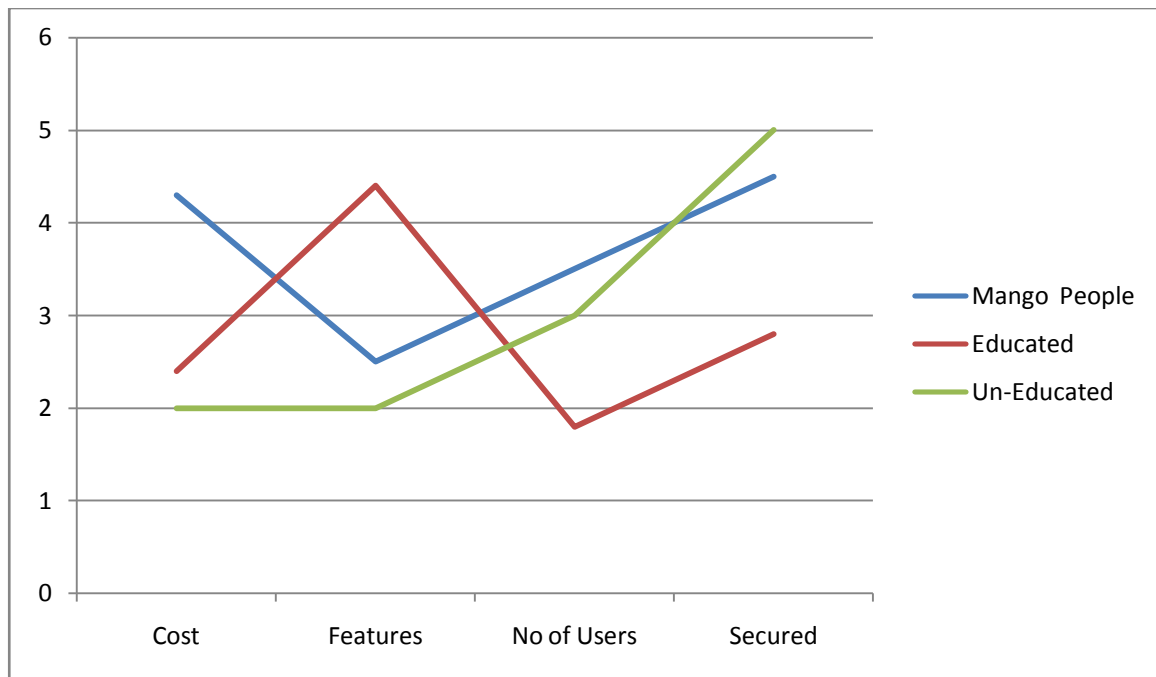
When we discuss about the functionality of tool the following question arises

Is it possible to modify the data in ontology?

The related functionality with the other tools available at the same cost or not?



The graph shows the group of different people who are the user of the ontology.



2. RELATED WORK

Comparative analysis of different ontology tools is not a new work, lots of work has been done in this field using different criteria of comparison. As in [2] author performed a survey on ontology construction tools in which they briefly explained the different tools and finally compared the features of different tools. Author of [5] explained gave detail about different ontology development tool and give the methodological support according to the features of the tool. Author of [6] performed a survey on web ontology editing tools and gives the comparative case study of ontology tools according to their feasible needs of development. Author of [7] give the detail features of ontology schema and layered architecture with their features. Author of [8] performed comparison of ontology tools based on ontology language, formalism, & their features. Author of [9] give the description of ontology tools, their needs & comparative study on re-engineering of ontology tools. Authors of [10] performed the comparison of tools based on experience of different group of person and their experience of using the tools.

3. COMPARISON OF DIFFERENT TOOL AVAILABLE TO DEVELOP ONTOLOGY

Features	Apollo	Topbraided composer	Protégé	Swoop	NeOn Toolkit	Text2Onto
Availability	Free	License for SE & Me	Free	Free	Free	Free
Implemented in	Java	Java	Java	Java	Java Eclipse	Java
Import format	OCML, CLOS	RDBMS, OWL, RDF(S)	XML, RDF(S), XML schema	OWL, RDF, XML, TEXT, OIL, DAML	RDFS, OWL	RDF(S), OWL
Export Format	OCML, CLOS, META, RDF, XML	OWL, RDF(S), XML	XML, RDF(S), XML schema, FLogic, CLISP, Java, HTML	RDF(S), OIL, DAML	RDFS, OWL	OWL, RDF(S), F-logic
Inference Engine	No	WOL, OWLIM, JENA, PELLET, Oracle rules & SPARQL Rules	FaCT	No	Yes Pellet2, Hermit, Ontobroker	Yes

Exception Handling	No	Yes	No	Yes	Yes	Yes Only Writing Mistake
Software Architecture	Standalone	Standalone Eclipse plug-in	Standalone Client/Server	Web-based & Client/Server	Standalone	Standalone & Via Plug-in
Backup Management	No	Yes	No	No	Yes	Yes
Querying	Yes	Yes	Yes	No	Yes	Y/N
Indian Language Support	No	No	No	No	No	No
Versioning	Y/N	Y/N	Y/N	YES	YES	Y/N
Merging	No	Y/N	Via ANCHOR-plugin	No	Yes	Y/N
Ontology Storage	Files	DBMS	Files & DBMS (JDBC)	As HTML Models	Files	Files
Multi User	No	Yes Except Free Edition	Limited (multiuser capability added to it in 2.0 version)	Yes	Yes Limited	Yes
Web support	No	Yes Except free Edition	Via protégé OWL plug-in	Yes	Yes	Yes Via KAOON portal
Internal Web Browser	No	Yes	No	Yes (Standard web browser Only for Ontology)	Yes	No

4. REFERENCES

- [1] Qinglin Guo, Ming Zhang, Question answering system based on semantic web and ontology Springer- Verlag Berlin Heidelberg 2008, et al.(eds):RSTK 2008 LNAI 5009, pp 652-659, 2008.
- [2] Tim Berners-Lee, James Hendler and Ora Lassila, "The Semantic Web", Scientific American, May 2001, p. 29-37.
- [3] Al-Arfaj Abeer et. Al. " Ontology Construction from Text: Challenges and Trends", International Journal of Artificial Intelligence and Expert Systems (IJAE), Volume 6 : Issue 2, 2015 PP 15-26
- [4] Sunitha Abburu and G. Suresh Babu, "Survey on Ontology Construction Tools" International journal of Scientific and Engineering Research , Vol 4, Issue 6, June 13, pp 1748-1752
- [5] Emhimed Alatrish, " Comparison some of ontology Editors", Management Information System, Vol 8, 2013, PP- 18-24.
- [6] Sabin Corneliu Buraga, Liliana Cojocaru, Ovidiu Catalin Nichifor, "Survey on web ontology Editing Tools" Periodica Politechnica, Transaction on Automatic control and Computer Science, Vol.NN(ZZ),2006,ISSN 1224-600X,pp 1-6.
- [7] Escorcio, L. and Cardoso, j. "Editing Tools for Ontology Construction", in "Semantic Web Services: Theory, Tools and Application", Idea Group. (scheduled for march 2007).
- [8] Thabet Slimani, "Ontology Development: A Comparing Study on Tools, Language and Formalism" Indian Journal of Science and Technology, vol8(24),sep 15 , pp 1-12.
- [9] Arti Singh, Poonam Anand, "International Journal of Advances in Computer Science and technology" Vol. 2, No. 7, July 2013, pp 96-101.
- [10] M.Rahamatullah Khondoker, Paul Mueller, "Comparing Ontology development Tools Based on an Online Survey" Proceedings of world Congress On Engineering 2010 Vol I WCE 2010
- [11] Qinglin Guo, Ming Zhang, Question answering system based on semantic web and ontology Springer- Verlag Berlin Heidelberg 2008.